



#10

1

SEQUENCE LISTING

<110> KARNOSKY, DAVID F.
PODILA, GOPI
XIANG, BIXIA

<120> TRANSGENIC TREES HAVING INCREASED RESISTANCE TO
IMIDAZOLINONE HERBICIDES

<130> 16313-0093

<140> 10/057,609

<141> 2001-01-24

<150> 60/264,216

<151> 2001-01-25

<160> 5

<170> PatentIn Ver. 2.1

<210> 1

<211> 2364

<212> DNA

<213> Arabidopsis thaliana

<400> 1

```
cttgtatcct tctcttaacc aataaaaaaa gaaagaaaga tcaatttgat aaatttctca 60
gccacaaatt ctacatttag gtttttagcat atcgaaggct caatcacaaa tacaatagat 120
agactagaga ttccagcgct acgtgagttt tatctataaa taaaggacca aaaatcaaat 180
cccgagggca ttttcgtaat ccaacataaa acccttaaac ttcaagtctc atttttaaac 240
aaatcatgtt cacaagtctc ttcttcttct ctgtttctct atctcttgct catctttctc 300
ctgaaccatg gcggcggaac caacaacaac aacaacatct tcttcgatct ccttctcoac 360
caaaccatct ccttcctcct ccaaatcacc attaccaatc tccagattct ccttcccatt 420
ctccctaaac cccaacaaat catectctc ctcccgccgc cgcggtatca aatccagctc 480
tccctcctcc atctccgccc tgctcaacac aaccaccaat gtcacaacca ctccctctcc 540
aaccaaacct accaaacccg aaacattcat ctcccgattc gctccagatc aaccccgcaa 600
aggcgctgat atcctcgtcg aagctttaga acgtcaaggc gtagaaaccg tattcgctta 660
ccctggagggt gcatcaatgg agattcacca agccttaacc cgctcttcct caatccgtaa 720
cgctccttct cgtcacgaac aaggagggtg attcgcagca gaaggatacg ctcgatcctc 780
aggtaaacca ggtatctgta tagccacttc aggtcccgga gctacaaatc tcgttagcgg 840
attagccgat gcgttggttag atagtgttcc tcttgtagca atcacaggac aagtcctctg 900
tcgtatgatt ggtacagatg cgtttcaaga gactccgatt gttgaggtaa cgcgttcgat 960
tacgaagcat aactatcttg tgatggatgt tgaagatata cctaggatta ttgaggaagc 1020
tttcttttta gctacttctg gtagacctgg acctgttttg gttgatgttc ctaaagatat 1080
tcaacaacag cttgcgattc ctaattggga acaggctatg agattacctg gttatatgtc 1140
taggatgcct aaacctccgg aagattctca tttggagcag attgttaggt tgatttctga 1200
gtctaagaag cctgtgttgt atgttggtgg tgggtgtttg aattctagcg atgaattggg 1260
taggtttgtt gagcttacgg ggatccctgt tgcgagtagc ttgatggggc tgggatctta 1320
tccttgatgat gatgagttgt cgttacatat gcttggaatg catgggactg tgtatgcaaa 1380
ttacgctgtg gagcatagtg atttggttgt ggcgtttggg gtaaggtttg atgatcgtgt 1440
cacgggtaag cttgaggctt ttgctagtag ggctaagatt gttcatattg atattgactc 1500
ggctgagatt gggaagaata agactcctca tgtgtctgtg tgtggtgatg ttaagctggc 1560
tttgcaaggg atgaataagg ttcttgagaa ccgagcggag gagcttaagc ttgatttttg 1620
agtttgaggg aatgagttga acgtacagaa acagaagttt ccgttgagct ttaagacggt 1680
tggggaagct attcctccac agtatgcgat taaggctcct gatgagttga ctgatggaaa 1740
agccataata agtactggtg tcgggcaaca tcaaagtggg gcggcgagcgt tctacaatta 1800
caagaaacca aggcagtggc tatcatcagg aggccttgga gctatgggat ttggacttcc 1860
```

**COPY OF PAPERS
ORIGINALLY FILED**

tgctgcgatt	ggagcgtctg	ttgctaaccc	tgatgcgata	gttgtggata	ttgacggaga	1920
tggaagcttt	ataatgaatg	tgcaagagct	agccactatt	cgtgtagaga	atcttccagt	1980
gaaggtaactt	ttattaaaca	accagcatct	tgccatgggt	atgcaatggg	aagatcggtt	2040
ctacaaagct	aaccgagctc	acacatttct	cggggatccg	gctcaggagg	acgagatatt	2100
cccgaacatg	ttgctgtttg	cagcagcttg	cgggattcca	gcggcgaggg	tgacaaagaa	2160
agcagatctc	cgagaagcta	ttcagacaat	gctggataca	ccaggacctt	acctgttgga	2220
tgtgattttgt	ccgcaccaag	aacatgtgtt	gccgatgatc	ccgaatgggtg	gcactttcaa	2280
cgatgtcata	acggaaggag	atggccggat	taaatactga	gagatgaaac	cggtgattat	2340
cagaaccttt	tatggtcttt	gtat				2364

<210> 2

<211> 2010

<212> DNA

<213> Arabidopsis thaliana

<400> 2

atggcggcgg	caacaacaac	aacaacaaca	tcttcttcga	tctccttctc	caccaaacca	60
tctccttctc	cctccaaatc	accattacca	atctccagat	tctcctctcc	attctcccta	120
aacccaaca	aatcatcctc	ctcctcccgc	cgcgcgggta	tcaaateccag	ctctccctcc	180
tccatctccg	ccgtgctcaa	cacaaccacc	aatgtcacia	ccactccctc	tccaaccaa	240
cctaccaaac	ccgaaacatt	catctcccga	ttcgtctccag	atcaaccccc	caaaggcgct	300
gatatcctcg	tcgaagcttt	agaacgtcaa	ggcgtagaaa	ccgtattcgc	ttaccctgga	360
gggtgcatcaa	tggagattca	ccaagcctta	acccgctctt	cctcaatccg	taacgtcctt	420
cctcgtcacg	aacaaggagg	tgtattcgca	gcagaaggat	acgctcgatc	ctcaggtaaa	480
ccaggatatct	gtatagccac	ttcagggtccc	ggagctacaa	atctcgttag	cggattagcc	540
gatgcgtttgt	tagatagtgt	tcctcttgta	gcaatcacag	gacaagtccc	tcgtcgtagt	600
attggtacag	atgcgtttca	agagactccg	attggtgagg	taacgcgttc	gattacgaag	660
cataactatc	ttgtgatgga	tgttgaagat	atccctagga	ttattgagga	agctttcttt	720
ttagctactt	ctggtagacc	tggacctgtt	ttgggtgatg	ttcctaaga	tattcaacaa	780
cagcttgca	ttcctaattg	ggaacaggct	atgagattac	ctgggtatat	gtctaggatg	840
cctaaacctc	cggaagattc	tcatttgagg	cagattgtta	gggttgatttc	tgagtctaag	900
aagcctgtgt	tgtatgttgg	tgggtggtgt	ttgaattcta	gcgatgaatt	gggtaggttt	960
gttgagctta	cggggatccc	tgttgcgagt	acgttgatgg	ggctgggata	ttatccttgt	1020
gatgatgagt	tgtcggtaca	tatgcttgga	atgcatggga	ctgtgtatgc	aaattacgct	1080
gtggagcata	gtgatttgtt	gttggcgttt	ggggtaaggt	ttgatgatcg	tgtcacgggt	1140
aagcttgagg	cttttgctag	tagggctaag	attgttcata	ttgatattga	ctcggctgag	1200
attgggaaga	ataagactcc	tcatgtgtct	gtgtgtggtg	atgttaagct	ggctttgcaa	1260
gggatgaata	aggttcttga	gaaccgagcg	gaggagctta	agcttgattt	tggagtttgg	1320
aggaatgagt	tgaacgtaca	gaaacagaag	ttcccggtga	gctttaagac	gtttggggaa	1380
gctattcctc	cacagtatgc	gattaaggtc	cttgatgagt	tgactgatgg	aaaagccata	1440
ataagtactg	gtgtcgggca	acatcaaatg	tgggcggcgc	agttctacaa	ttacaagaaa	1500
ccaaggcagt	ggctatcatc	aggaggcctt	ggagctatgg	gatttgagct	tcctgctgcg	1560
attggagcgt	ctgttgctaa	ccctgatgcg	atagttgtgg	atattgacgg	agatggaagc	1620
tttataatga	atgtgcaaga	gctagccact	attcgtgtag	agaatcttcc	agtgaaggta	1680
ctttttattaa	acaaccagca	tcttgggcatg	gttatgcaat	gggaagatcg	gttctacaaa	1740
gctaaccgag	ctcacacatt	tctcggggat	ccggctcagg	aggacgagat	attcccgaac	1800
atgttgctgt	ttgcagcagc	ttgcgggatt	ccagcggcga	gggtgacaaa	gaaagcagat	1860
ctccgagaag	ctattcagac	aatgctggat	acaccaggac	cttacctgtt	ggatgtgatt	1920
tgtccgcacc	aagaacatgt	gttgccgatg	atcccgaatg	gtggcacttt	caacgatgtc	1980
ataacggaag	gagatggccg	gattaaatac				2010

<210> 3

<211> 670

<212> PRT

<213> Arabidopsis thaliana

<400> 3

Met	Ala	Ala	Ala	Thr	Thr	Thr	Thr	Thr	Thr	Ser	Ser	Ser	Ile	Ser	Phe
1				5					10					15	
Ser	Thr	Lys	Pro	Ser	Pro	Ser	Ser	Ser	Lys	Ser	Pro	Leu	Pro	Ile	Ser
			20					25					30		
Arg	Phe	Ser	Leu	Pro	Phe	Ser	Leu	Asn	Pro	Asn	Lys	Ser	Ser	Ser	Ser
		35					40					45			
Ser	Arg	Arg	Arg	Gly	Ile	Lys	Ser	Ser	Ser	Pro	Ser	Ser	Ile	Ser	Ala
	50					55					60				
Val	Leu	Asn	Thr	Thr	Thr	Asn	Val	Thr	Thr	Thr	Pro	Ser	Pro	Thr	Lys
	65				70					75					80
Pro	Thr	Lys	Pro	Glu	Thr	Phe	Ile	Ser	Arg	Phe	Ala	Pro	Asp	Gln	Pro
				85					90					95	
Arg	Lys	Gly	Ala	Asp	Ile	Leu	Val	Glu	Ala	Leu	Glu	Arg	Gln	Gly	Val
			100					105					110		
Glu	Thr	Val	Phe	Ala	Tyr	Pro	Gly	Gly	Ala	Ser	Met	Glu	Ile	His	Gln
		115					120					125			
Ala	Leu	Thr	Arg	Ser	Ser	Ser	Ile	Arg	Asn	Val	Leu	Pro	Arg	His	Glu
	130					135					140				
Gln	Gly	Gly	Val	Phe	Ala	Ala	Glu	Gly	Tyr	Ala	Arg	Ser	Ser	Gly	Lys
	145				150					155					160
Pro	Gly	Ile	Cys	Ile	Ala	Thr	Ser	Gly	Pro	Gly	Ala	Thr	Asn	Leu	Val
				165					170					175	
Ser	Gly	Leu	Ala	Asp	Ala	Leu	Leu	Asp	Ser	Val	Pro	Leu	Val	Ala	Ile
			180					185					190		
Thr	Gly	Gln	Val	Pro	Arg	Arg	Met	Ile	Gly	Thr	Asp	Ala	Phe	Gln	Glu
		195					200					205			
Thr	Pro	Ile	Val	Glu	Val	Thr	Arg	Ser	Ile	Thr	Lys	His	Asn	Tyr	Leu
	210					215					220				
Val	Met	Asp	Val	Glu	Asp	Ile	Pro	Arg	Ile	Ile	Glu	Glu	Ala	Phe	Phe
	225				230					235					240
Leu	Ala	Thr	Ser	Gly	Arg	Pro	Gly	Pro	Val	Leu	Val	Asp	Val	Pro	Lys
				245					250					255	
Asp	Ile	Gln	Gln	Gln	Leu	Ala	Ile	Pro	Asn	Trp	Glu	Gln	Ala	Met	Arg
			260					265					270		
Leu	Pro	Gly	Tyr	Met	Ser	Arg	Met	Pro	Lys	Pro	Pro	Glu	Asp	Ser	His
		275					280					285			
Leu	Glu	Gln	Ile	Val	Arg	Leu	Ile	Ser	Glu	Ser	Lys	Lys	Pro	Val	Leu
	290					295					300				

Tyr Val Gly Gly Gly Cys Leu Asn Ser Ser Asp Glu Leu Gly Arg Phe
 305 310 315 320
 Val Glu Leu Thr Gly Ile Pro Val Ala Ser Thr Leu Met Gly Leu Gly
 325 330 335
 Ser Tyr Pro Cys Asp Asp Glu Leu Ser Leu His Met Leu Gly Met His
 340 345 350
 Gly Thr Val Tyr Ala Asn Tyr Ala Val Glu His Ser Asp Leu Leu Leu
 355 360 365
 Ala Phe Gly Val Arg Phe Asp Asp Arg Val Thr Gly Lys Leu Glu Ala
 370 375 380
 Phe Ala Ser Arg Ala Lys Ile Val His Ile Asp Ile Asp Ser Ala Glu
 385 390 395 400
 Ile Gly Lys Asn Lys Thr Pro His Val Ser Val Cys Gly Asp Val Lys
 405 410 415
 Leu Ala Leu Gln Gly Met Asn Lys Val Leu Glu Asn Arg Ala Glu Glu
 420 425 430
 Leu Lys Leu Asp Phe Gly Val Trp Arg Asn Glu Leu Asn Val Gln Lys
 435 440 445
 Gln Lys Phe Pro Leu Ser Phe Lys Thr Phe Gly Glu Ala Ile Pro Pro
 450 455 460
 Gln Tyr Ala Ile Lys Val Leu Asp Glu Leu Thr Asp Gly Lys Ala Ile
 465 470 475 480
 Ile Ser Thr Gly Val Gly Gln His Gln Met Trp Ala Ala Gln Phe Tyr
 485 490 495
 Asn Tyr Lys Lys Pro Arg Gln Trp Leu Ser Ser Gly Gly Leu Gly Ala
 500 505 510
 Met Gly Phe Gly Leu Pro Ala Ala Ile Gly Ala Ser Val Ala Asn Pro
 515 520 525
 Asp Ala Ile Val Val Asp Ile Asp Gly Asp Gly Ser Phe Ile Met Asn
 530 535 540
 Val Gln Glu Leu Ala Thr Ile Arg Val Glu Asn Leu Pro Val Lys Val
 545 550 555 560
 Leu Leu Leu Asn Asn Gln His Leu Gly Met Val Met Gln Trp Glu Asp
 565 570 575
 Arg Phe Tyr Lys Ala Asn Arg Ala His Thr Phe Leu Gly Asp Pro Ala
 580 585 590
 Gln Glu Asp Glu Ile Phe Pro Asn Met Leu Leu Phe Ala Ala Ala Cys
 595 600 605